# Tourism Industry during a Pandemic

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# Introduction

- COVID-19 in 2020 has caused a significant loss to the local economies that rely on the tourism industry.
- The tourism industry is a basic industry to local economies with low economic potential because it is a labor-intensive industry.

# Popular tourist route


New Infected People Map, 28th July

# Industries in Shizuoka Prefecture

Manufacturing area







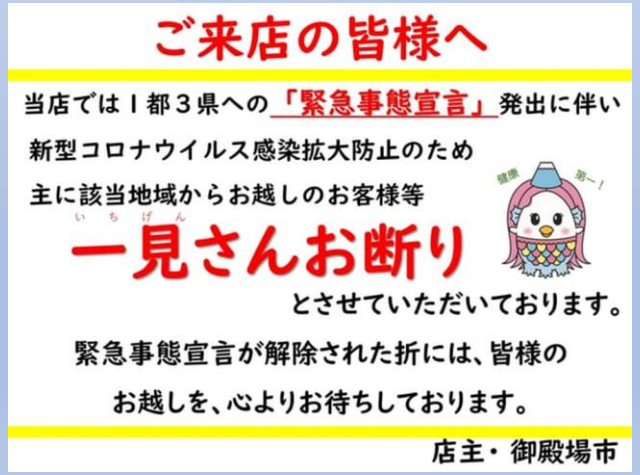

Resort area

# Aim of this study

- To provide the economic prediction for next month.
  - A standard tool to estimate the economic impact of tourism is an input-output analysis.  Unfortunately, the estimation is yearly based.
  - System dynamics must contribute to the needs of residents.
- To develop the socio-economic model for prolonged coronavirus.
  - Consumers are changing their propensity to consume.
  - Employment structure is changing.

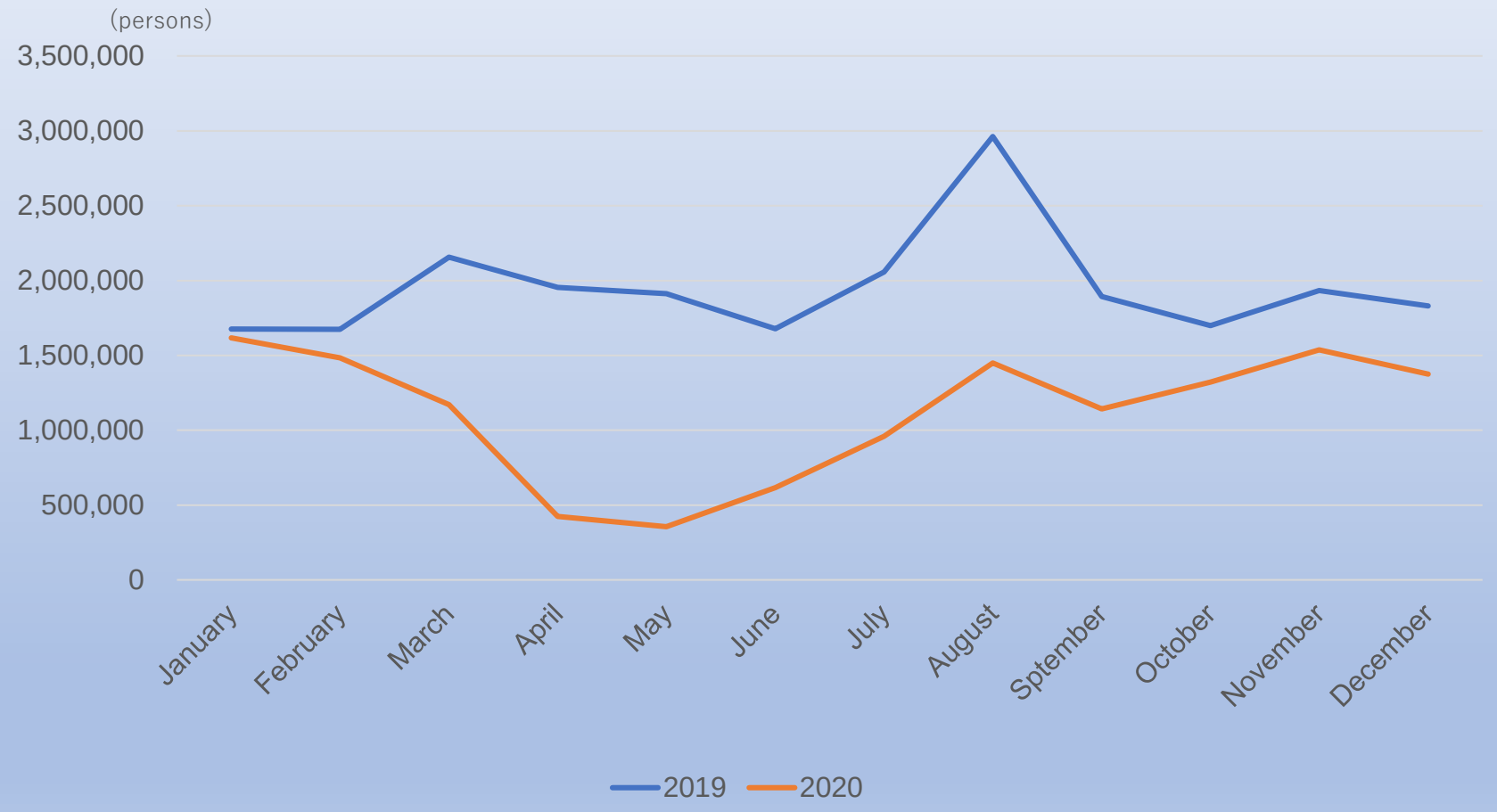
# Background of this study

- The tourism industry in Shizuoka Prefecture faces a trade-off between infection control and tourist income.
  - Infection control:
    - All prefectures request self-quarantine to stop the spread of the coronavirus.
    - The number of positives for the coronavirus in Shizuoka Prefecture correlates with the number of positives in Tokyo.
  - Tourist income:
    - A decline in sales.
    - Closing of restaurant and hotel business.
    - Dis-employment.

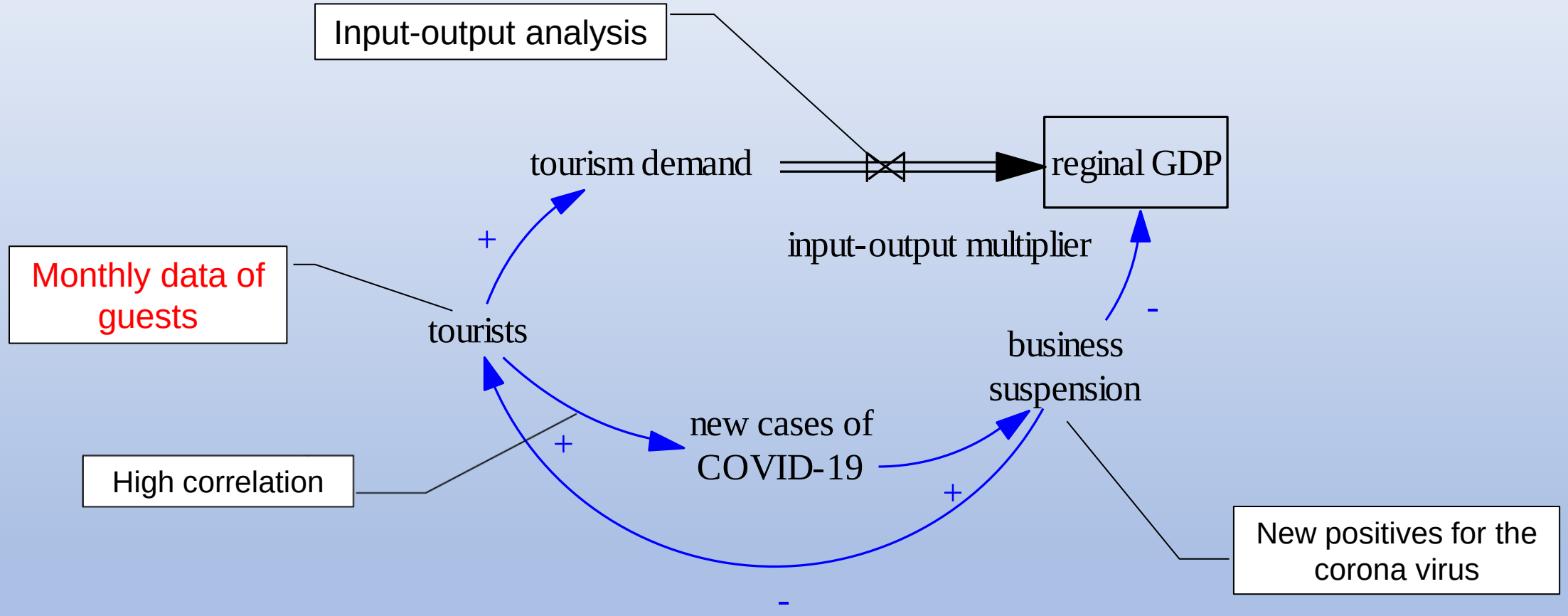


No first-time customers

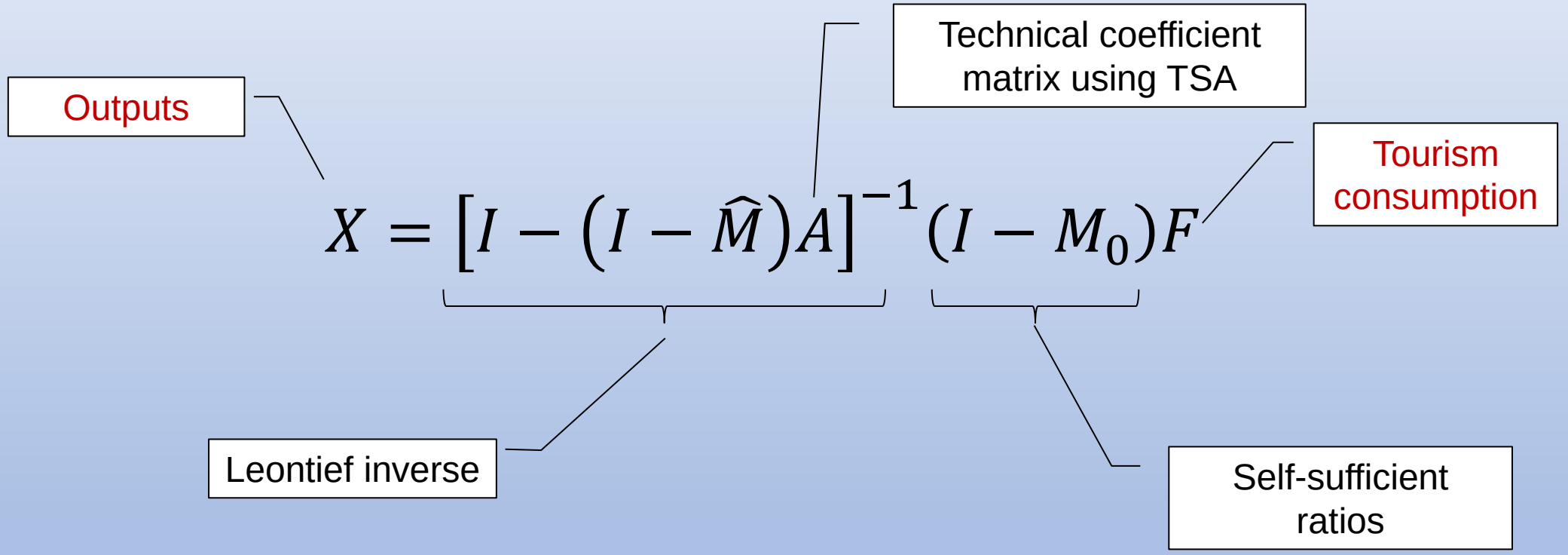
# Visitors to Shizuoka Prefecture



# Model for Shizuoka Prefecture

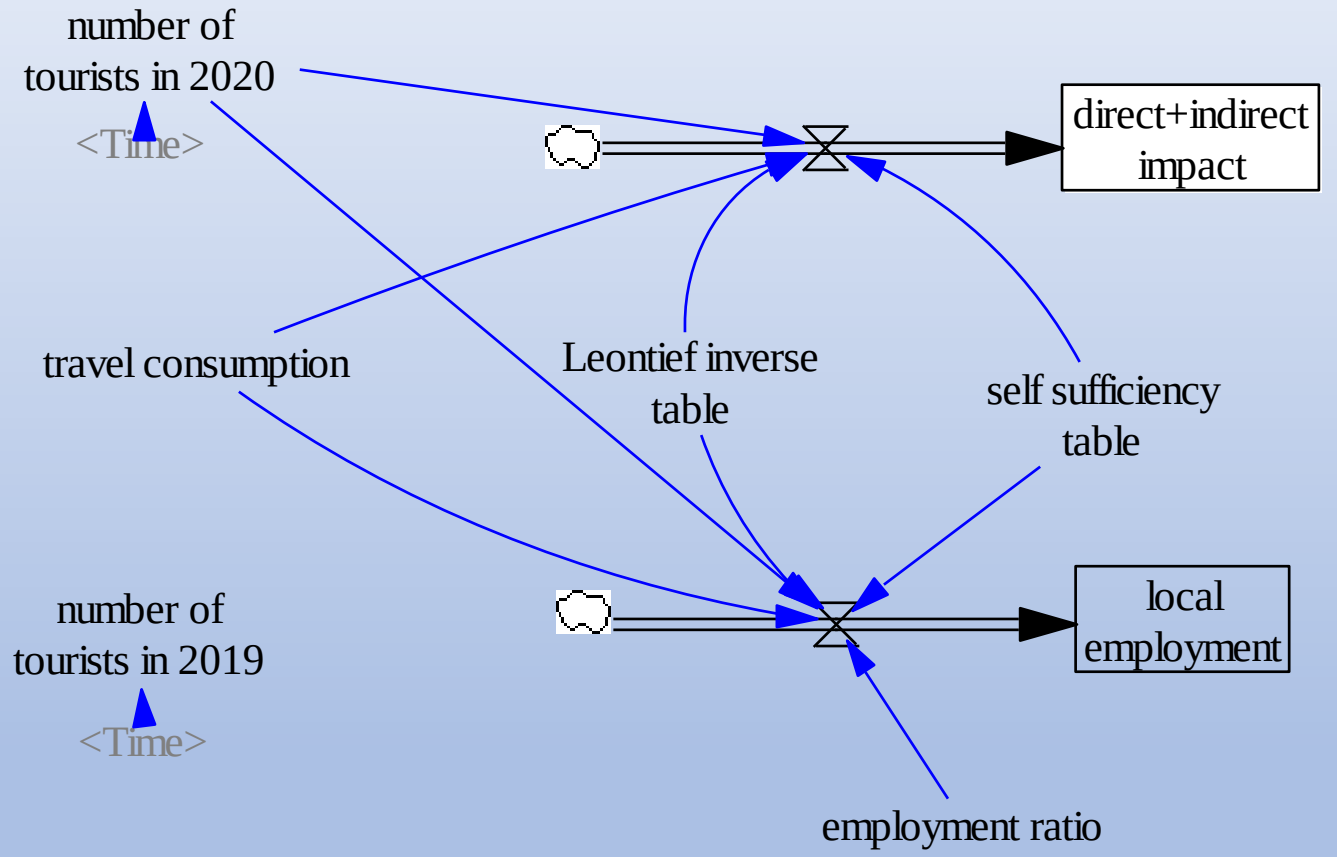


# Input-output analysis of tourism



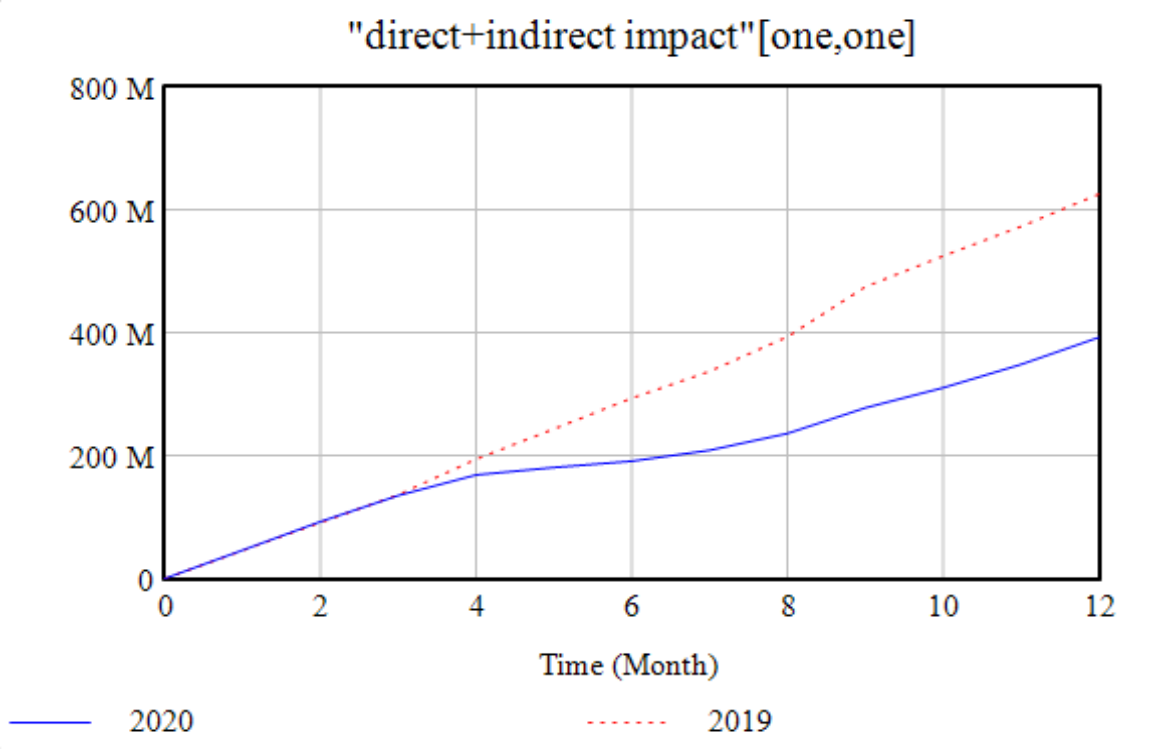

TSA: Tourism Satellite Account

# Input-output part of the model



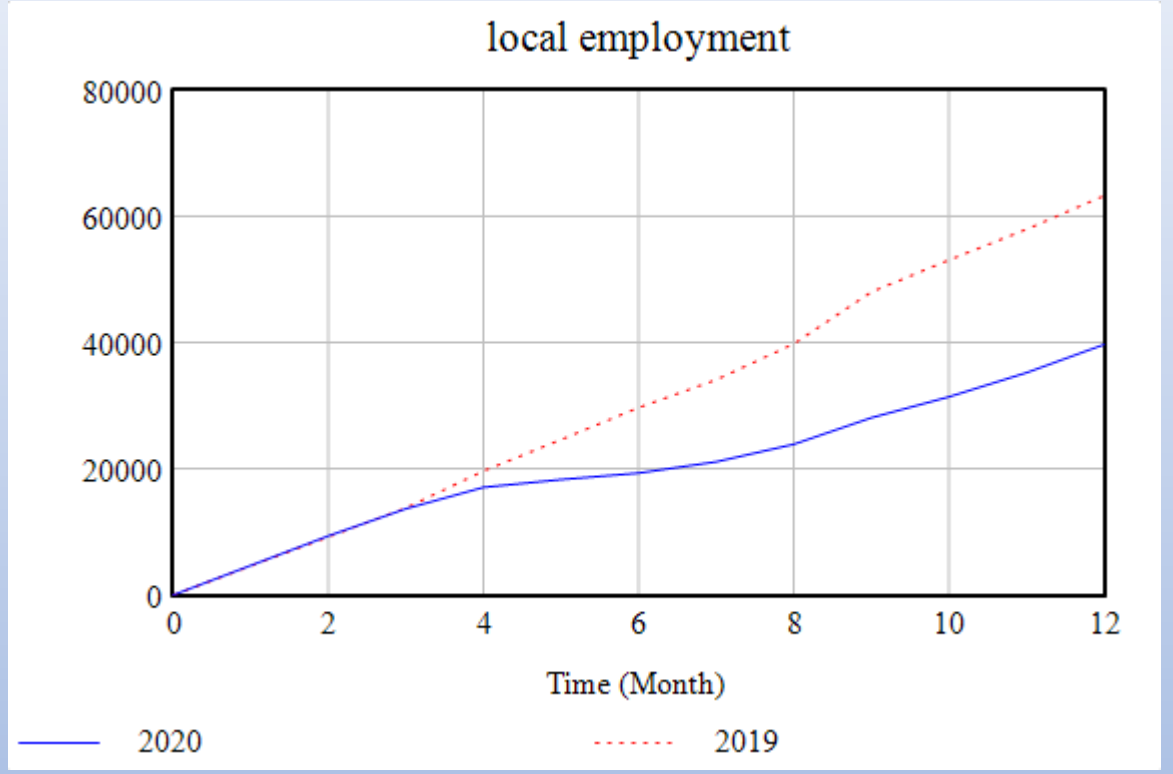
# Result 1: Economic ripple effect

- The ripple effect on Shizuoka's economy due to tourism consumption was estimated to be ¥393 billion yen in 2020, 63% of ¥626 billion yen in 2019.
- The model revealed that the loss at a peak season (summer season) was significant in 2020.



# Result 2: Employment effect

- The employment effect on Shizuoka's economy due to tourism consumption was estimated to be 39,708 persons in 2020, which was 63% of 63,299 persons in 2019.



# Conclusion

- 1) An input-out problem can be inverted into an equivalent system dynamics model.  In system dynamics format, we can visualize processes that are not visible in the static model.
- 2) The system dynamics model with TSA clarifies the severity of the tourism industry in detail. For example, despite the “Go-To Travel” campaign, the decrease in tourists during the busy summer season damaged the tourism industry in Shizuoka Prefecture during the pandemic.
- 3) There are many deficiencies in regional economic data. The system dynamics model may reproduce the problem even in situations where limited data is available.

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# Future work

- 1) The current model uses a 47x47 technical coefficient matrix. I am now updating it to the full 109x109 matrix.
- 2) A half of visitors in the Shizuoka Prefecture stay in the Izu Peninsula. Therefore, I am now making the Izu model.
- 3) The mudslide attacked Atami City in Shizuoka Prefecture on the 3rd July 2021. Atami city is a gate to the Izu Peninsula. This giant mudslide delays the recovery of tourism. I will add this effect.